A NEW HESPERALOE FROM SONORA, MEXICO

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Hesperaloe nocturna Gentry, sp. nov. Planta perennis, acaulis, multi-cespitosa, 1–1.4 m alta, ad 1–2 m late; foliis 100–150 cm longis, 1–2 cm latis ad basim, linearis longiapiculatis supra plana et crassa ad basim, canaliculata ad apice, viridibus striatis, margine angusto brunneo sparse-filifero, apice pungens vel asperigilliformis aetate provectal inflorescentia racemosa, gracila, 1.2–2 m longa, simplice vel 1–3-ramosus; flores pedicellates, fasciculates, noctiflorus, 25–30 mm longes; tepala pruinosa-violacea, adpressa vel reflexa anthesis nocturna, 15–18 mm longa, 5 mm lata; filamenta glabra 8–9 mm longa ad basim tepala inserta; antheris sagitatis 8–9 mm longis in corolla inclusis; ovario 8–9 mm longo, oblongo; styli 8 mm longi crassi; stigmata capitati papillosi; capsulae 3–4 cm longae, 3.5–4.5 cm latae, depresso-ovoidae vel oblongae, rugosae apiculatae; semina grandii nigra, 8 × 11 mm.

Acaulescent, densely cespitose rosettes forming large clumps about 1.5 m tall and 1–2 m broad; leaves narrowly linear, 1–1.5 m long, 1–2 cm broad near the base, striate, plane towards the base and deeply concave upwards on the upper side, deeply rounded below, tip acicular and pungent, fraying in age; margin narrow, brown, irregularly and finely filiferous; infloresecence slender, 1.5–2 m tall, a simple or 2–3-branched arching raceme on long peduncles; bracts of the peduncle dry, lanceolate, 6–4 cm or less long; bracteoles chartaceous, 3–5 mm long, obtuse to acute; flowers 24–30 mm long, fasciculate on unequal pedicels 5–18 mm long, 4 to 6 or 8 at the node, nocturnal, pruinose pink to lavender in the bud, greenish below, stipitate on a pedicellar joint; tube 2–3 mm long; tepals 15–22 mm long, reflexing at nocturnal anthesis, other-times appressed, whitish within, the outer tepals pink or lavender on the back and narrower than the inner, the inner with a broad flat keel and greenish pink or greenish lavender on the back; filaments equaling the pistil, 8–9 mm long, attached to base of tepals; anthers sagitate, versatile, 8–9 mm long; ovary 8–9 mm long above tube base, green, trigonous, oblong, roundly angled at the apex, ringed at the base with nectary; style 8 mm long, stout, stigma capitate, papillate; capsules depressed ovoid or oblong, 3–4 cm long, 2.5–4.5 cm broad, apiculate, rugose; seeds large, black, 8 × 11 mm.

Holotype: *Gentry & Felger 19988* (US), 15 miles southeast of Magdalena along road to Curcurpe, by Sierra Baviso, Sonora, Mexico, alt. 3200–3500 feet, May 21, 1963.

Also at the type locality: *Gentry 19890* (US), April 1 (sterile); *Felger 3458* (US), July 16, 1960; *Wiggins 7132* (US), talus slope of basaltic cliff toward south end of Baviso Mts., 17 miles southeast of Magdalena, Sept. 11, 1934. The description of the flowers is drawn from preserved material collected at the time of anthesis. The dried specimens are much smaller.

FIG. 1. *Hesperaloe nocturna* with flower, N, compared with flower and inflorescence section of *H. parviflora,* P.

The two other species known in this genus occur east of the continental divide, *H. parviflora* (Torr.) Coult. in Texas and *H. funifera* (Koch) Trel. in northeastern Mexico. Trelease (1902) gave an historical account of them. He observed *H. parviflora* in cultivation and

FIG. 2. *Hesperaloe nocturna* southeast of Magdalena. The clumps are like "bear grass."

noted considerable variation in the size and color of flowers on the same plant during the several months of flowering. In both *H. parviflora* and *H. nocturna* the flowers appear one by one at any given node, so there is little apparent progression up or down the raceme. First examination of the Sonoran collections tentatively assigned them to var. *engelmannii* under *H. parviflora,* but with subsequent consideration of the morphology and biology I evaluate the differences at the specific level. The strictly nocturnal flowering of *H. nocturna* is of particular importance in separating it from the other two species with diurnal flowers. Speculatively, the reflexing of the tepals with their whitish interior are correlative to pollination by night-flying insects, while the red, tubular form of the diurnal flower is indicative of bird pollinators. Other structures, such as the large nocturnal anthers and the small diurnal anthers, may also reflect biotic adaptations. The following synoptical key shows the more contrasting characters of the two relatives.

Leaves large and course, 3–6 cm wide near the base and to 2 m long, nearly straight, with coarse white marginal filiferae; flowers greenish tinged with purple . . . . . *funifera*

Leaves smaller, 1–3 cm wide near the base and 1–1.5 m long, arcuately spreading, with very fine marginal filiferae

Flowers nocturnal, greenish lavender ,with a short tube; tepals reflexed at anthesis; filaments short (8–9 mm) with large anthers (8–9 mm); ovary large (8–9 mm long), oblong, imbedded in receptacle; style short (8 mm), stout . . . . . *nocturna*

Flowers diurnal, dark red to light red, tubeless; tepals appressed at anthesis; filaments elongate (13–14 mm) with small anthers (4 mm); ovary small (4–5 mm long), ovoid, free of receptacle; style elongate (12–13 mm), slender . . . . . *parviflora*

FIG. 3. *Hesperaloe nocturna* southeast of Magdalena. The capsules show the generic difference between it and "bear grass."

Figure 1 compares the floral structures of *H. nocturna* and *H. parviflora,* drawn respectively from the type and *Gentry 19966* from Richardson, Texas. The development of a short but definite tube is unusual in the Yucceae, but has been observed in other members, as *Yucca carnerosana* (Trel.) McKelvey. Of special significance is the ovarian tissue imbedded in the fleshy receptacle of *H. nocturna,* or a tendency of the tube to grow up around the ovary, leading towards an inferior position of the ovary exhibited in other members of the Agavaceae, where it is not always completely inferior. *Manfreda guttata* (Jacobi & Bouché) Rose (*A. protuberans* Engelm.) and *Agave striata* Zucc. both have ovaries that protrude into the tube and hence are incompletely inferior.

Further observations may discover still other agavoid taxa to bridge the gap between the superior ovary of the Liliaceae and the inferior ovary of the Amarillidaceae, the principal character conservatively aligning the Agaves with the Amaryllids.

Hesperaloe nocturna is patently rare, as it is not known from other collections or places. However, as much of northeastern Sonora has not been botanized, it may be expected in other Sonoran localities. This occurrence records the genus from west of the continental divide. In appearance the plants closely resemble the clumped "bear grass," *Nolina microcarpa* S. Wats., which occurs in the same region (figs. 2, 3). Doyle Noel of the USDA Plant Quarantine Station in Nogales, Arizona, first called the plant to my attention. Plants are presently growing in his garden and he can be credited with making the first introduction.

Transplants are also responding well in the Desert Botanical Garden, Phoenix, Arizona. No native names or uses were obtained for the plant.

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Literature Cited

Trelease, W. 1902. The Yucceae. Missouri Bot. Gard. Rep. 13:27–31, pls. 1–4.

NOTES AND NEWS

Lasthenia glabrata remains diploid.—Recently Mehra et al. (Caryologia 18:35–68. 1965) reported $n = 14$ for the helenioid composite *Lasthenia glabrata* Lindl. This count was based on plants of unspecified origin cultivated in Chandigarh, India. In view of my determination of $n = 7$ for plants in several populations of this species in its native California (Univ. Calif. Publ. Bot. 40:1–92. 1966), this record of an apparent tetraploid is of unusual interest. In response to my request, achenes of the Indian plants were sent through the courtesy of Prof. Mehra, and were subsequently planted in Berkeley. Upon flowering, it was clear that the plants belonged to *L. chrysostoma* (F. & M.) Greene, a species known to have $n = 8$ and $n = 16$ but not $n = 14$. Although hypotetraploids in this species would be of unusual cytophyletic interest, examination of microsporogenesis in them indicated that they have $n = 16$ rather than $n = 14$. Meiosis was characterised by sticky chromosomes in the first meiotic division and this may have led Mehra and his co-workers to an impression of fewer chromosome pairs than exist. In fact, it is possible to reinterpret fig. 33 published by them as $n = 16$, if it is assumed that one of the alleged bivalents is a pair of loosely associated bivalents, and that what appear to be two sets of dissociated bivalents are each trivalents, or that perhaps the large ringlike figure is a quadrivalent. I am indebted to T. F. Niehaus for his assistance with this problem.—Robert Ornduff, Dept. of Botany, University of California, Berkeley.